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10/045,055	01/15/2002	Eyal Benoudiz	V02/16	2941

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EXAMINER

KENDALL, CHUCK O

ART UNIT PAPER NUMBER

2122

DATE MAILED: 11/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/045,055

Applicant(s)

BENOUDIZ, EYAL

Examiner

Chuck Kendall

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

*Detailed Action*

1. This action is in response to the application filed 01/15/02.
2. Claims 1 – 24 are pending.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 10, & 12 – 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. USPN 6,016,474.

Regarding claim 1, Kim anticipates a generation debugger for visual debugging of a group of constraints during a test generation process by a generator, comprising a systematic, graphical representation for relating generation objects and generation decisions (FIG. 7b, 712 and 716, also see related text)

Regarding claim 2, the debugger of claim 1, wherein said graphical representation is as a two dimensional chart (FIG. 7b, 716, see call graph).

Regarding claim 3, the debugger of claim 2, wherein said two-dimensional chart is based on generation events collected during the generation process and static analysis phase (FIG. 7b, 712, see building directed graph using call graph information), each event reflecting a generation operation, and wherein generation entities for generating said generation events are presented on a first dimension of said chart and a second dimension represents an execution sequence, with generation events being displayed as aligned with their related generation entities (3: 55 – 4: 13).

Regarding claim 4, the debugger of claim 1, further comprising: a data browser for interactive selection of generation entities to be viewed (FIG. 35, see scope browser).

Regarding claim 5, the debugger of claim 1, further comprising:

a step tree for presenting a sequence of steps performed by the generator, for identifying the step where the computation diverged from the expected behavior (3: 60 – 63).

Regarding claim 6, the debugger of claim 1, further comprising:

an event browser for displaying generation events (FIG. 36, see breakpoint palette).

Regarding claim 7, the debugger of claim 1, further comprising:

an order browser for displaying generation field order decisions (FIG. 37, see stack Palette, see properties and source view).

Regarding claim 8, a method for visual debugging of a group of constraints during a test generation process by a generator, comprising:

displaying a plurality of generation events collected during the generation process such that a relationship between said plurality of generation events and a plurality of generation entities for generating said generation events is graphically displayed (FIG. 7b, 712 and 716, also see related text), and wherein an order of execution of said generation entities is also graphically displayed, for visual debugging of the group of constraints (11: 1 – 10, see display and highlighting program execution path).

Regarding claim 9, the method of claim 8, further comprising: viewing a plurality of generation events sequentially from a selected event (11:38 – 54).

Regarding claim 10, the method of claim 9, wherein said sequence is displayed forward from said selected event (11: 10 – 12, see displaying selected values at time of breakpoint).

Regarding claim 12 the method version of claim 1, see rationale as previously discussed above.

Regarding claim 13, the method of claim 12, wherein said visual display includes a representation of at least one generated field from at least one event (FIG. 24, see Order file properties).

Regarding claim 14, the method of claim 12, wherein said visual display includes a representation of at least one constraint from at least one event (FIG. 7b, 714, 716, for constraint see algorithm).

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Regarding claim 15, the method of claim 12, wherein said visual display includes a representation of at least one generation event related to a generation entity (15: 22 – 30, see hold state, break point and runtime trap).

Regarding claim 16, the method of claim 12, wherein said visual display includes at least one type of information displayed as a result of a selection by the user (15: 30 – 45).

Regarding claim 17, the process version of claim 8 see rationale as previously discussed above.

Regarding claim 18, the generation debugger of claim 17, wherein said visual display further displays information related to an event collected during static analysis (11: 45 – 50, see breakpoint, note: while tracing and debugging code analysis is done statically, breakpoints are used to parse through the code).

Regarding claim 19, the generation debugger of claim 17, wherein said visual display further displays information related to an event collected during program execution (11: 50 – 55, see display lines).

Regarding claim 20, the generation debugger of claim 17, wherein said information is represented with at least one icon and wherein said visual display further displays information when said icon is selected (FIG. 28 b).

Regarding claim 2, the generation debugger of claim 17, wherein said visual display further displays ordering information for a plurality of fields (11: 1 – 5, see highlighting the execution path up to break point).

Regarding claim 22, the generation debugger of claim 21, wherein said visual display further displays ordering information based on static analysis (11: 1 – 5, see highlighting the execution path up to break point, also see 2: 5 – 7).

Regarding claim 23, the generation debugger of claim 21, wherein said visual display further displays ordering information based on order computed dynamically (11: 1 – 5, see highlighting the execution path up to break point).

Regarding claim 24, the generation debugger of claim 21, wherein said visual display further displays ordering information related to a group of fields selected through said visual display (11: 1 – 5, see highlighting the execution path up to break point, also see FIG. 30b, for step in and step out).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. USPN 6,016,474 in view of Wygodny et al. 6,209,199 B1.

Regarding claim 11, Kim discloses all the claimed limitations as applied in claim 9 above. Kim doesn't expressly disclose wherein said sequence is displayed backward from said selected event. Kim does disclose that typically debuggers include a step command, a trace command, a watch value command and a data break command. Wygodny in an analogous art discloses, "During the trace analysis process, the analyzer 106 provides the developer 112 with execution analysis options that are similar to those of conventional debuggers, including options for single stepping and running forward through the traced execution of the client 102 while monitoring program variables. In addition, the analyzer 106 allows the developer 112 to step backward in the trace, and to search for breakpoints both in the future and in the past.". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kim and Wygodny because, being able to step through code or trace code is a general feature in debuggers and allows code to be analyzed at any point or point in time.

*Conclusion*


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-2723698. The examiner can normally be reached on 10:00 am - 6:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-2723695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK.



TUAN DAM  
SUPERVISORY PATENT EXAMINER